

1       1. A method comprising:  
2           treating an unexposed photoresist with an  
3       electric field.

1       2. The method of claim 1 wherein treating includes  
2       exposing a photoresist to an electric field to reduce the  
3       horizontal extent of aggregates formed in the photoresist.

1       3. The method of claim 1 wherein treating includes  
2       reducing line edge roughness by exposing photoresist to an  
3       electric field before exposing the photoresist to  
4       radiation.

1       4. The method of claim 1 wherein treating the  
2       photoresist includes exposing said photoresist to an  
3       electric field while the photoresist is above its glass  
4       transition temperature.

1       5. The method of claim 4 including causing said  
2       photoresist to exceed its glass transition temperature by  
3       heating said photoresist.

1       6. The method of claim 5 including causing said  
2       photoresist to exceed its glass transition temperature by  
3       solvent-induced depression.

1       7. The method of claim 1 wherein treating an  
2 unexposed photoresist includes using an electrode to  
3 generate said electric field, said electrode having an  
4 opening that enables said photoresist to be exposed to  
5 radiation.

1       8. The method of claim 1 wherein treating includes  
2 depositing a conductive layer on said photoresist in order  
3 to apply an electric field to said photoresist.

1       9. The method of claim 1 wherein treating an  
2 unexposed photoresist with an electric field includes  
3 generating said electric field by passing alternating  
4 current through a coil.

1       10. The method of claim 9 including using a radio  
2 frequency coil.

1       11. A method comprising:  
2              forming a conductive layer over photoresist; and  
3              exposing said photoresist to an electric field  
4 using said layer.

1       12. The method of claim 11 including depositing said  
2 layer to enable radiation to pass through said layer.

1           13. The method of claim 11 including depositing a  
2         conductive material to form said layer and removing said  
3         layer after the photoresist is developed.

1           14. The method of claim 11 including spinning on said  
2         conductive layer.

1           15. The method of claim 11 wherein forming a  
2         conductive layer includes depositing a water soluble  
3         conductive material to act as said conductive electrode.

1           16. A method comprising:  
2                 treating a photoresist with an electric field  
3         generated by passing alternating current through a coil.

1           17. The method of claim 16 including arranging said  
2         coil so as to allow said photoresist to be exposed to  
3         radiation.

1           18. The method of claim 16 including exposing said  
2         photoresist to said electric field while said photoresist  
3         is being exposed to radiation to transfer a pattern to said  
4         photoresist.

1           19. The method of claim 16 including using a radio  
2         frequency coil.

1        20. A method comprising:  
2                 exposing photoresist to radiation; and  
3                 while exposing said photoresist to radiation,  
4                 exposing said photoresist to an electric field.

1        21. The method of claim 20 including exposing said  
2         photoresist to an electric field using an electrode with an  
3         opening to permit the passage of radiation.

1        22. The method of claim 20 including exposing said  
2         photoresist to radiation through an electrode which is thin  
3         enough to allow said radiation to pass.

1        23. The method of claim 20 including exposing said  
2         photoresist to an electric field using a radio frequency  
3         coil to induce said electric field.

1        24. The method of claim 20 including exposing the  
2         photoresist to extreme ultraviolet radiation.

1        25. A method comprising:  
2                 forming a photoresist on a substrate;  
3                 baking said photoresist before exposure; and  
4                 while baking said photoresist, applying an  
5         electric field.

1        26. The method of claim 25 including exposing said  
2 photoresist to an electric field using a radio frequency  
3 coil.

1        27. The method of claim 25 including exposing said  
2 photoresist to an electric field using an electrode with an  
3 opening therethrough.

1        28. The method of claim 27 including using a ring  
2 shaped electrode.

1        29. The method of claim 25 including exposing said  
2 baked photoresist to extreme ultraviolet radiation.

1        30. A method comprising:  
2              developing an irradiated photoresist; and  
3              while developing said irradiated photoresist,  
4 exposing said photoresist to an electric field.

1        31. The method of claim 30 including causing the  
2 resist development rate to be higher at the bottom of the  
3 photoresist than at the top.

1        32. The method of claim 30 including applying an AC  
2 potential to said photoresist.

1           33. The method of claim 30 including applying a DC  
2 potential to said photoresist.

1           34. A semiconductor structure comprising:  
2                 a substrate having a plane;  
3                 photoresist on said substrate; and  
4                 aggregates dispersed through said photoresist,  
5                 said aggregates being aligned substantially transversely to  
6                 the plane of said substrate.

1           35. The structure of claim 34 wherein said  
2 photoresist is a hydrogen-bonding polymer or copolymer.

1           36. The structure of claim 34 wherein said substrate  
2 is a wafer.

1           37. A semiconductor structure comprising:  
2                 a substrate;  
3                 a photoresist over said substrate; and  
4                 a soluble conductive layer formed over said  
5                 photoresist, said conductive layer to apply an electric  
6                 field to said photoresist.

1           38. The semiconductor structure of claim 37 wherein  
2 said conductive layer comprises a functionalized  
3 polythiophene polymer.

1       39. The semiconductor structure of claim 38 wherein  
2    said conductive layer comprises a functionalized  
3   polythiophene polymer and onium sulfonate salt.

1       40. The semiconductor structure of claim 37 wherein  
2    said conductive layer comprises a functionalized  
3   polythiophene polymer and an ammonium sulfonate salt.